It is the object of the invention to specify a graphical user interface, a system and a method for an electrophotographic printing or copying system with which a simple and fast error correction is possible and operator control actions for request of consumable materials and expendable parts as well as in malfunction notification are simplified.

This object is achieved according to a first aspect of the invention for a graphical user interface for display of a malfunction state of an electrophotographic printing or copying system with the features of the patent claim 1. Advantageous developments are specified in the dependent patent claims.

Errors and potential malfunctions or, respectively, warnings are signaled to an operating personnel via a color, variable display field via an inventive graphical user interface according to patent claim 1, whereby malfunctions are in particular error states of the electrophotographic printer printing or copying system. An operating personnel thus immediately recognizes, i.e. at a glance, that the electrophotographic printing or copying system is in an undisturbed operating state, in an operating state with a malfunction or in an operating state with a potential malfunction, in particular in an alarm or warning state. The operating personnel can thereby furthermore quickly and specifically take measures for error correction and minimize the effect of a malfunction. The operating personnel can thus, for example, forward print jobs to other printing or copying systems.

A second aspect of the invention concerns a method to indicate a malfunction state of an electrophotographic printing or copying system. With the help of such a method, an operating personnel can quickly and simply obtain information about the operating state of the electrophotographic printing or copying system, whereby the operating personnel can immediately take further steps for malfunction correction or to prevent a malfunction.

A third aspect of the invention concerns a graphical user interface for support in the correction of an error state of an electrophotographic printing or copying system. Given the occurrence of an error state, i.e. given occurrence of a malfunction or a potential malfunction, a first graphic representation of at least one view of the printing or copying system is output with the aid of the graphical user interface. The region is thereby specified in which an occur has occurred. Furthermore, a second graphic representation can be output in which the error location is shown enlarged and/or more detailed in contrast with the first graphic representation. An operating personnel or a service technician is thereby given a precise aid in finding the error location. The error cause can thereby be quickly and specifically remedied. Furthermore, the at least two views that serve for indications for finding the error location and thus for fast remedy of the error state can be switched between.

A fourth aspect of the invention concerns a method for support in the correction of an error state of an electrophotographic printing or copying system. Given an error state, at least one first graphical representation of at least one view of the printing or copying system in which the error state has occurred is output. At least one second graphical representation is subsequently output via which at least one enlarged or a more detailed representation of the error location occurs. An operating personnel can thereby be guided step-by-step to the error location. Long delays in the finding of the error cause are thus prevented. The operating personnel receives more detailed information for finding the error location with the aid of the views. The error location can thereby also be the location at which the error can be corrected.

A fifth aspect of the invention concerns a system for automatic generation of notices in the electrophotographic printer or copier. The system contains a data processing system that generates at least one text message upon occurrence of a pre-set event. For example, malfunction messages, re-orders of expendable parts and of consumable materials can thereby be generated without further operator

Claims

1. Graphical user interface for indication of a malfunction state of an electrophotographic printing or copying system,

with at least one display field (14, 16, 54, 56) for malfunction indication, whereby the display field is essentially shown in a first color given an undisturbed first operating state,

the display field (14, 54) is essentially shown in a second color given a potentially disturbed second operating state with a potential malfunction of a first group,

and whereby the display field (16, 56) is essentially shown in a third color given a disturbed third operating state with a malfunction of a second group.

2. User interface according to claim 1, characterized in that the first color is a low-contrast color relative to the surroundings of the display field.

3. User interface according to one of the previously cited claims, characterized in that the second color is a color that is clearly distinguishable from the surroundings of the display field (14, 54), in particular the color yellow, whereby a warning message is output in the second operating state.

4. User interface according to any of the previously cited claims, characterized in that the third color is a color that is clearly distinguishable for [sic] the surroundings of the display field (16, 56), in particular the color red, whereby a malfunction message is output in the third operating state.

5. User interface according to any of the preceding claims, characterized in that the first group comprises potential malfunctions in which a warning message and/or alarm message is output via the color of the display field, whereby no actual impairment of the printing or copying process is present given malfunctions of the first group.

6. User interface according to any of the preceding claims, characterized in that the second group comprises malfunctions in which an error state exists due to which a severe impairment of the printing or copying system exists and/or the printing or copying process is interrupted.

7. User interface according to any of the preceding claims, characterized in that the display field (14, 16, 54, 56) contains a graphical symbol.

8. User interface according to claim 7, characterized in that the symbol is at least changed given a change from the second operating state to the third operating state.

9. Graphical user interface for display of a malfunction state of an electrophotographic printing or copying system,

with at least one first display field (14, 56) and a second display field (16, 56),

whereby the first display field (14, 54) and the second display field (16, 56) are essentially shown in a first color given an undisturbed first operating state,

the first display field is essentially shown in a second color and the second display field is essentially shown in the first color given a potentially

disturbed second operating state with a potential malfunction of a first group first operating state,

and whereby the second display field (16, 56) is shown in a third color given a disturbed third operating state with a malfunction of a second group.

10. Method for display of a malfunction state of an electrophotographic printing or copying system,

in which the display field (14, 16, 54, 56) is essentially shown in a first color in an undisturbed first operating state,

the display field (14, 16, 54, 56) is essentially shown in a second color in a potentially disturbed second operating state with a potential malfunction of a first group,

and in which the display field (14, 16, 54, 56) is essentially shown in a third color given a disturbed third operating state with a malfunction of a second group.

11. Graphical user interface for support in the remedy of an error state of an electrophotographic printing or copying system,

with at least one first graphical representation of at least one view of the printing or copying system, whereby the region (24, 58) is specified in which an error has occurred,

with at least one second graphical representation in which the error location is shown enlarged and/or in more detail in contrast to the first graphical representation.

12. User interface according to claim 11, characterized in that at least the second graphical representation contains an indication of the accessibility of the error location (24, 58).

13. User interface according to claim 11 or 12, characterized in that the first and/or second representation is a three-dimensional representation.

14. User interface according to any of the claims 11 through 13, characterized in that the first and/or second view is contained in an image series of an animated graphic or a film sequence.

15. User interface according to any of the claims 11 through 14, characterized in that the second graphical representation can be generated from the first graphical representation with the aid of an enlarging function.

16. User interface according to the claim 15, characterized in that the activation of the enlarging function occurs via an input with the aid of a computer mouse or a touch-sensitive screen.

17. User interface according to any of the claims 11 through 16, characterized in that, in addition to the first and/or second graphical representation, the graphical user interface contains text via which an operating personnel receives an indication of the accessibility of the error location and/or of the error cause.

18. User interface according to any of the claims 11 through 17, characterized in that the first and/or second graphical representation contains at least one region of the housing side (24) of the printing or copying system from which an access to the error location is possible.

19. Method for support in the remedy of an error state of an electrographic printing or copying system,

in which, given an error state, at least one first graphical representation of at least one view of the printing or copying system is output in which the region (24, 58) of the printing or copying system in which the error state has occurred is specified,

and in which at least one second graphical representation is subsequently output, via which at least enlarged representation or a more detailed representation of the error location occurs.

20. System for automatic generation of messages in an electrophotographic printer or copier,

with a data processing system that generates at least one first text message that contains at least one error code given the occurrence of an error state,

and which transmits the message to at least one preset recipient.

21. System according to claim 20, characterized in that a preset event occurs when a preset minimum quantity of consumable material is reached, the [sic] a preset wear limit of an expendable part is reached and/or an error state of the electrophotographic printing or copying system occurs.

22. System according to claim 20 or 21, characterized in that a transfer of the message occurs with the aid of an e-mail.

23. System according to claim 20 or 21, characterized in that a transfer of the message occurs with the aid of an SMS message.

24. System according to any of the claims 20 through 23, characterized in that the message is automatically generated, whereby the sending of the message occurs via an input via an operating unit of the electrophotographic printer or copier.

25. System according to any of the claims 20 through 24, characterized in that the message contains further specifications and/or current setting values of the printer or copier that are necessary to determine the error cause.

26. System according to any of the claims 20 through 25, characterized in that the message to be transmitted to an operating unit of the printer or copier can be displayed.

27. System according to any of the claims 20 through 26, characterized in that the message contains at least the serial number, the error code and at least the counter state of the printer or copier.

28. System according to any of the claims 20 through 27, characterized in that in the system an error code is associated with each of a plurality of possible error states, and that the occurred error state can be identified with the aid of the transferred error code.

29. Method for automatic generation of messages in an electrophotographic printer or copier,

in which a text message that contains at least an error code is automatically generated with the aid of a data processing system after the occurrence of a preset error state,

and in which the message is sent to a preset recipient.